

## THE ELATERIDÆ OF PENNSYLVANIA\*

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As part of a study on the Elateridæ, or click beetles inhabiting Pennsylvania, a number of collections and publications was examined and the data were assembled into the following list. This shows the approximately 220 species and varieties of this coleopterous family which have been found in this state, their distribution, and gives some idea of the comparative abundance of each species. The arrangement of the Leng list and its supplements has been used; the localities of collection are arranged as nearly as possible according to their location from eastern to western Pennsylvania. Most of the collecting of elaterids has occurred in the southern half of the state, especially near Philadelphia, Harrisburg and Pittsburgh, with a lesser amount in the eastern and western counties north of those cities. Only a limited amount of collecting has been done in the north central and northern border counties. It is hoped that these latter localities may be more extensively examined, in order to determine whether the species found further south in the state have a distribution which is continuous with the same species as noted in Leonard's New York State list. John B. Smith's 1909 New Jersey list records several species which have so far not been found in Pennsylvania.

The collections consulted in compiling this list were as follows: the collections of Knull, Kirk and the Bureau of Plant Industry (BPI) at Harrisburg; of Horn, Haimbach and Frank Mason at the Philadelphia Academy of Natural Sciences; of the Zoology Department of the University of Pennsylvania; the Reading Museum collection, mostly collected by Dr. D. M. Castle near Philadelphia; the collections at the University of Delaware (Newark, Del.); Cornell University (Ithaca, N. Y.); Franklin and Marshall College (Lancaster, Pa.); Rutgers University (New Brunswick, N. J.); the H. W. Wenzel collection at Ohio State Univer-

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sity; the Slosson and Palm specimens in the American Museum of Natural History, New York; the E. D. Quirsfeld collection; the Klages collection at the Carnegie Museum in Pittsburgh; and the writer's personal collection, which also contains numerous specimens collected by S. W. Frost at Arendtsville, Pa. Data on Pennsylvania-collected specimens were also contributed by M. C. Lane, Walla Walla, Washington, W. J. Brown, Ottawa, Canada, H. C. Fall, Tyngsboro, Mass., and specialists of the United States National Museum at Washington, D. C. The above coleopterists also kindly identified many specimens for the writer, while others were determined by comparison with the types in the Horn collection at the Academy in Philadelphia, or from descriptions in the literature. The lists by Hamilton and Klages have provided a number of Pennsylvania records. When the specimens in any collection could not be accurately identified, those records were omitted from this list, and will be considered in a later paper.

In general, the records from the region of the Pocono Mountains and the Delaware Water Gap were from Palm, Nicolay and Quirsfeld; Bethlehem region by Slosson, Quirsfeld and G. W. Caffrey; Philadelphia, Bucks and Delaware counties by Haimbach, Kaeber, Robinson and Castle; Chester County by Thomas; Lancaster County, by the Franklin and Marshall College collection; Harrisburg and the Susquehanna Valley by Champlain, Greene, Kirk, Knull and their associates of the Pennsylvania Bureau of Plant Industry; State College vicinity, by students in the Zoology Dept.; Mt. Alto by Knull; Arendtsville by Frost; Jeanette, Pittsburgh and vicinity by Hamilton, Klages and Chermock. Although the Fall and Liebeck collections, now in the Museum of Comparative Zoology, have not been examined, they undoubtedly contain Pennsylvania collected elaterids. Since it is impossible within the confines of this paper to include the name of the collection from which each locality record was made, these in most instances have been omitted; however, these will be furnished to anyone who applies to the writer.

The writer wishes to express his appreciation to all the above collectors who so kindly sent data to be used in this list, or who permitted examination of the collections under their care. He also wishes to thank Mr. George Greene, of the Pennsylvania

Bureau of Plant Industry, for the use of many notes taken from his personal files.

To this paper is appended a list of publications containing original descriptions of Pennsylvania elaterids, and many notes on these insects.

## THE ELATERIDÆ OF PENNSYLVANIA

### Pyrophorinæ

#### ADELOCERA Latr.

The larvæ and adults of this genus are usually found under the bark of dead trees, stumps and logs. The larvæ of some species are predacious.

8553—*aurorata* Say. Throughout the winter in the above situations; June. Beneath the bark of dead pitch pine, according to Kirk, '22. Greentown, Clarks Valley, Clearfield, State College, Loretto, Jeannette, Wilmerding, Pittsburgh.

8554—*impressicollis* Say. Type locality Pennsylvania: Say, 1825, 260. Active from mid-April to mid-July. Hibernates in decaying cavities of old trees (Kirk, '22). Not common, although Hamilton, '95, stated that it was common under old logs in Allegheny County. Harrisburg, Rockville, Chambersburg, Jeannette, Pittsburgh.

8557—*brevicornis* LeC. Rare. Found in stumps in winter; active April to Sept. Delaware Water Gap, Balsam Swamp, Pike County, Mt. Alto, Caledonia, Charter Oak, State College, Ricketts, Allegheny County, Northeast.

8558—*obtecta* Say. Hamilton stated that this species was not rare under the bark of trees. Kirk, '22, found the larvæ in the galleries of wood-borers. Champlain, Kirk and Knull caught them in fermenting baits. Active from early April to mid September. Hibernate under bark. Greentown, Delaware Water Gap, Bethlehem, Angora, Upper Darby, Honey Brook, Kennett Square, Laporte, Hummelstown, Clarks Valley, Inglenook, Chinchilla, Linglestown, McAlevys Fort, State College, Hollidaysburg, Jeannette, Pittsburgh.

8560—*marmorata* Fab. Kirk, '22, found the larvæ feeding on larvæ of bostrychid beetles (*Trichodesma gibbosa*) in a gum tree.

Adults active from April to October. Greentown, Parryville, Tinicum, Mt. Moriah, Parkland, Olney, Angora, Philadelphia, Fernwood, Bromall, Unionville, Manoa, Harrisburg, West Fairview, Linglestown, Hummelstown, Rockville, State College, Jeannette, Wilmerding, Pittsburgh, Allegheny County, New Brighton.

8561—*discoidea* Web. Generally distributed and fairly common throughout the state. Collected in every month except September. Hibernates under bark, in dead logs, etc., as both larva and adult. Found in bait pails in summer. The following are a few typical localities where this species has been collected: Delaware Water Gap, Bethlehem, Wyoming, Lafayette, Olney, Frankford, Philadelphia, Glenolden, Castle Rock, Broomall, West Chester, Kennett Square, Jennersville, Honey Brook, Hummelstown, Rockville, Dauphin, Clarks Valley, State College, Mt. Alto, Chambersburg, Hollidaysburg, Jeannette, Pittsburgh.

8562—*avita* Say. Adults reared from larvæ under bark of dead and dying hickory trees containing wood-boring larvæ on which they fed; adults collected at night (Kirk, '22). March to August. Hummelstown, Harrisburg, State College, Marion, Linglestown, Jeannette, Wilmerding, Pittsburgh.

8563—*modesta* Boisd. Collected in April, July and August. State College, Pittsburgh, Northeast.

—*maculata* LeC. Type locality near Philadelphia: LeConte, 1866, XVIII, 389. Philadelphia: O. Schwartz, 1907, 318; Wilmerding: one specimen in the Lane collection.

#### ALAU8 ESCH.

8571—*oculatus* L. Common and widely distributed. This, our largest click beetle and wireworm, is most common in May, June and early July, but has been collected in nearly every month. The adult hibernates under bark and in rotten logs and stumps. The large larvæ are very active and pugnacious; they feed on the larvæ of woodboring beetles and other insects which live under bark and in decaying wood. Kirk, '22, said that this species occurs only on deciduous trees, according to the notes of the Bureau of Plant Industry. Champlain, Kirk, and Knull ('26, '32) caught many adults in baits in June and July at Clarks Valley. Typical collections: Bethlehem, Scranton, Pittston,



Kutztown, Philadelphia, Germantown, Angora, Roxboro, Bustleton, Media, Swarthmore, Broomall, Devon, Castle Rock, Cheyney, Kennett Square, Unionville, Honey Brook, Reading, Mt. Hope, Hummelstown, Harrisburg, Rockville, Clarks Valley, Mt. Alto, Hollidaysburg, Benton, State College, Irvona, Danville, Laporte, Williamsport, Port Allegany, Bingham Center, Corydon, Brookville, Erie, Uniontown, New Alexandria, Indiana, Jeannette, Pittsburgh, and many other localities.

8572—*myops* Fab. This beetle, which is locally fairly common in the New Jersey Pine Barrens, is quite rare in Pennsylvania, where it is found under loose pine bark. Kirk, '22, collected it near Harrisburg in pine trees and stumps infested with woodboring larvæ. Knull, '32, found it feeding on adult carpenter ants in a decaying pine log. The writer found it breeding under bark on dead pines in the Nottingham Barrens, Chester County, Pa., in May 22, 1940. It has been collected in January, March, May to August, and November, at Angora, Hummelstown, Rockville, Mt. Alto, State College, Harrisburg, Promised Land Lake (Pike County).

#### HEMIRHIPUS LATR.

8576—*fascicularis* Fab. This is apparently very rare in Pennsylvania. Specimens labelled Pittsburgh are in the Klages collection. One Philadelphia specimen in the Bureau of Plant Industry collection. One in the collection at Franklin and Marshall College, Lancaster, labelled Pa. Pennsylvania specimens are also in the Horn and Wenzel collections. June and July.

#### CHALCOLEPIDIUS ESCH.

8584—*viridipilis* Say. An uncommon species found in southern Pennsylvania. Kirk, '22, collected a specimen at Rockville on sour sap on an oak tree in the evening. Active in June to August. Collected at Cornwells, Philadelphia Neck, Lester, Linglestown, Rockville, Franklinville, Jeannette and Pittsburgh.

#### CONODERUS ESCH. (MONOCREPIDIUS)

8596—*lividus* De G. One of our more common click beetles, especially in southeastern Pennsylvania. The adults are active

from late May to early September. They are commonly attracted to lights and to molasses baits, and are frequently beaten from the leaves of peach, hickory, walnut, oak and other trees. The larvæ are predacious, but also feed to some extent on crops. Typical collections: Bethlehem, Delaware Water Gap, Morrisville, Feasterville, Uhlertown, Philadelphia, Mt. Airy, Fox Chase, Overbrook, Angora, Glenolden, Broomall, Chadds Ford, Avondale, Kennett Square, West Grove, Jennersville, Downingtown, Homeville, New Holland, Reading, Paxtang, Hummels-town, Harrisburg, New Bloomfield, Linglestown, Franklinville, Carlisle Jet., York, State College, Williamsport, Jeannette, Pittsburgh.

8601—*vespertinus* Fab. Larvæ injurious to roots of truck crops and tobacco, but not important in Pennsylvania. Adults sometimes found on mullein. Active May to August. Philadelphia, Delaware County, Jeannette, Allegheny County.

8607—*auritus* Hbst. Adults active from late April to September. Hibernates under weeds, stones, mullein leaves, etc. Delaware Water Gap, Wyoming, Bethlehem, Manayunk, Philadelphia, Bustleton, Germantown, Frankford, Roxboro, Mt. Airy, Angora, Glenolden, Broomall, Castle Rock, Harrisburg, Chinchilla, Rockville, Enola, Linglestown, Inglenook, Charter Oak, Jeannette, Pittsburgh.

8609—*bellus* Say. Active May to August. Adults hibernate. Sometimes attracted to lights. Bethlehem, Manayunk, Philadelphia, Angora, Mt. Airy, Germantown, Glenolden, Broomall, Castle Rock, Kennett Square (several under rubbish in greenhouse), Downingtown, Rockville, Mt. Alto, Jeannette, Allegheny County (rare, according to Hamilton).

#### AEOLUS ESCH. (DRASTERIUS)

8613—*amabilis* LeC. Adult hibernates, and is active from April to August. Attracted to baits. Philadelphia, Angora, Tinicum Island, Middletown, Harrisburg, Linglestown, Enola, Rockville, Arendtsville, Caledonia, Jeannette.

8614—*mellilus mellilus* Say. (*Drasterius elegans* of authors.) The larva of this species is injurious to tobacco roots. Delaware Water Gap, Bethlehem, Philadelphia, Bustleton, Angora, Mt.

Airy, Frankford, Glenolden, Kennett Square, Green Lawn, West Grove, Palmyra, Middletown, Harrisburg, Rockville, Lemoyne, State College, Arendtsville, Mechanicsburg, Jeannette, Pittsburgh.

PITYOBIUS LEC.

8617—*anguinus* LeC. Endeavor. Now in the Bureau of Plant Industry collection, this was collected by Knull on July 30. It apparently is the only Pennsylvania record, although it has been taken occasionally in New Jersey and southern New York. The above larva was taken on a freshly cut white pine log, according to Kirk, '22. The large larva resembles that of *Alaus oculus*, and lives under bark and in rotten wood in the same manner as that species.

LIMONIUS ESCH.

8619—*auripilis* Say. May to July. Delaware Water Gap, Bethlehem, Nottingham Barrens (beaten from Post Oak), Hummelstown, Drumgold, Cedar Run, Laporte, Kane, Horse Valley (Franklin County), Mt. Alto, Chambersburg, Charter Oak, Hollidaysburg, Jeannette, Pittsburgh, Charleroi, Allegheny County (not rare, according to Hamilton).

8624—*aurifer* LeC. June, July. Rare. State College, Forksville, Barbours, Laporte, Murraysville, Jeannette, Allegheny County (rare (Hamilton, 1895)). Williamsport: LeConte, 1866, p. 347.

8625—*propexus* Cand. (*griseus* Beauv.). A common species from mid May to late July. May often be found on rhubarb flowers in May, and on weeds. Typical collections: Edge Hill, Parkland, Ashbourne, Philadelphia, Bustleton, Olney, Fairmount Park, Glenside, Germantown, Roxboro, Manayunk, Glenolden, Devon, Castle Rock, West Chester, Kennett Square, Avondale, Oxford, Downingtown, Lancaster, New Holland, Pequea, Landisburg, Hummelstown, Linglestown, Harrisburg, New Germantown, Cly, Marsh Run, Cresco, Charter Oak, Jeannette, Pittsburgh.

8626—*griseus* Beauv. (*interstitialis* Melsh.). Type locality Pennsylvania: Melsheimer, 1846. Much more scarce than *propexus*. May to August. Manayunk, Bustleton, Philadelphia Neck, Upper Darby, Kennett Square, Eberleys Mill, Jeannette,

Pittsburgh, Allegheny County (rare (Ham., '95)). LeConte, 1853, p. 430, cited a Pa. record.

8627—*confusus* LeC. Early May to mid July. Cresco, Laporte, Barbour, Philadelphia, Roxboro, Castle Rock, Hummelstown, Linglestown, Perry County, Mt. Alto, Jeannette, Allegheny County (not common (Ham., '95)).

8629—*plebejus* Say. A fairly common and widely distributed species. Early April to late July. Typical collections: Cresco, Bethlehem, Upper Darby, Castle Rock, Hummelstown, Rockville, Enola, Harrisburg, Herndon, New Germantown, Columbia County, State College, Clearfield, Mt. Alto, Shippensburg, Hartstown, Sandy Lake, Jeannette, Pittsburgh, Northeast, Washington County, Allegheny County (very common (Ham., '95)).

8631—*ager* LeC. Klages collection contains specimens labelled this, from Pennsylvania. W. J. Brown believes that this may be found in Pa. Blackwelder lists it from Pa. in Leng's 4th Supplement, 1939, p. 39.

8633—*quercinus* Say. A small species sometimes common on oak and hazelnut in May to July. Numerous in baits in June and July at Clarks Valley, according to Champlain and Knull, '32. Lehigh Gap, Bethlehem, Edge Hill, Penllyn, Parkland, Philadelphia, Roxboro, Frankford, Glenolden, Avondale, Hummelstown, Harrisburg, Inglenook, Linglestown, New Bloomfield, Charter Oak, State College, Chambersburg, Carlisle, Jeannette, Pittsburgh, Allegheny County (very common (Ham., '95)).

8635—*basillaris* Say. Another small species on oaks; quite similar to *quercinus*. Numerous in baits at Clarks Valley, according to Champlain and Knull, '32. Bethlehem, Frankford, South Philadelphia, Manayunk, Lester, Castle Rock, Kennett Square, Jennersville, Hummelstown, Harrisburg, Rockville, New Bloomfield, Charter Oak, Northeast, Jeannette, Pittsburgh.

8639—*dubitans* LeC. (*Nothodes dubitans* LeC.). Type loc. Pa.: LeConte, '53, p. 433. May and June, on *Ambrosia trifida*, rhubarb and other flowers. This is the common economic wireworm pest of truck crops, potatoes, etc., in southeastern Pennsylvania. Bustleton, Cornwells, Philadelphia, Hulmeville, Kennett Square, Downingtown, Pottstown, Millerstown, Hummelstown, Harrisburg, Indiana, Jeannette, Pittsburgh.

8640—*stigma* Hbst. April to late June. Edge Hill, German-



town, Upper Darby, Castle Rock, Inglenook, Rockville, Barbours, Forksville, Chambersburg.

8649—*anceps* LeC. Leng lists this species from Pennsylvania, but it is not represented in any collection which I have examined. Van Dyke ('32) and Fall ('34) believe this to be only a phase or variety of *ectypus*.

8650—*ectypus* Say. Greentown, Cornwells, Harrisburg, Charter Oaks, Forksville, Warren, Jeannette, Pittsburgh. O. Schwarz, 1906, p. 195, and Leng ('20) list this species from Pennsylvania as does Leng's 4th Supplement, 1939, p. 39. Listed from Williamsport by LeConte, 1866, p. 347.

—*agonus* Say. The larvæ are injurious to corn and potatoes in northwestern Pa. Active late April to July. Cresco, New Market, Harrisburg, Inglenook, Warren, Jeannette, Pittsburgh, Allegheny County (common, according to Hamilton), Forest County (on corn grains). It is probable that southeastern Pa. records refer to *dubitans*, acc. to M. C. Lane.

8652—*ornatipennis* LeC. Type locality, York, Pa.: LeConte, 1863b, p. 84. Apparently rare in Pennsylvania. One Delaware County specimen in the University of Pennsylvania collection, and one in the Horn collection. Hamilton collected one on sassafras in Allegheny County. O. Schwarz, 1906, p. 195, and Leng both list this species from Pennsylvania.

8653—*definitus* Zieg. Hummelstown, Harrisburg, Heckton Mills, Mt. Alto, Allegheny County (rare here and at St. Vincent (Latrobe) according to Hamilton). May, June.

8654—*nimbatus* Say. Delaware Water Gap, Edge Hill, Parkland, Glenolden, New Bloomfield, Mt. Alto, Jeannette. According to Hamilton it is rare in Allegheny County and at St. Vincent. Melsheimer, 1806, p. 931, and LeConte, 1853, p. 434, both list it from Pennsylvania, the latter giving it as *L. infernus*. May–July.

—*knulli* Fall. Type locality: Forksville, Pa., July 17, 1930; Fall, '33, p. 229. Also collected by Knull at Laporte.

#### ELATHOUS REIT. (LEPTOSCHEMA HORN)

8657—*bicolor* LeC. Specimens in the Klages collection labelled Jeannette and Indiana. Pennsylvania specimens in the Lane collection. April.

8658—*discalceatum* Say. Adult in pupal cell in decayed pitch pine at Cold Springs, Adams County, July 26, according to Knull, '32. Listed from Pennsylvania by LeConte, 1853, p. 428, and Leng, 1920. May to mid September. Rockville, Clarks Valley, Indiana, Erie, Jeannette, Pittsburgh, Latrobe.

#### ATHOUS ESCH.

8661—*trivittatus* Melsh. Type locality Pennsylvania: Melsheimer, 1846, p. 157. Leng lists this from Pennsylvania. No specimens found in collections which I have examined.

8662—*brightwelli* Kby. Common throughout the state. Adults found on oak, beech, walnut and hickory, late April to late August. Are attracted to molasses baits. Larvæ live in rotten logs and stumps. Cresco, Buck Hill, Graterford, Philadelphia, Swarthmore, Castle Rock, Cornwells, Hummelstown, Harrisburg, Inglenook, Rockville, Clarks Valley, Laporte, Arendtsville, Chambersburg, Mt. Alto, Charter Oak, Jeannette, Pittsburgh.

8663—*acanthus* Say. Beaten from willow and other trees. April through July. Delaware Water Gap, Edge Hill, Tabor, Philadelphia, Glenolden, Hummelstown, Harrisburg, Dauphin, Mt. Alto, Hollidaysburg, Northeast, Jeannette, Pittsburgh, Waynesburg.

*b-maculicollis* LeC. Numerous in baits in July at Clarks Valley, according to Champlain and Knull, 1932. Rare in Allegheny County, according to Hamilton. May–July. Enterline, Hartstown Bog, Jeannette, Pittsburgh.

8667—*cucullatus* Say. Attracted to bait pails. The larvæ feed on wood-boring larvæ in dead logs, according to Kirk, 1922. May to September. Delaware Water Gap, Easton, Montgomery County, Phoenixville, Darby, Markham, Avondale, Cornwells, Philadelphia, Hummelstown, Harrisburg, Rockville, Clarks Valley, Endeavor, State College, Pond Bank, Erie, Jeannette, Pittsburgh. Not common in Allegheny county, according to Hamilton.

—*hypoleucus* Melsh. Leng lists this from Pennsylvania.

8668—*scapularis* Say. Adults on oak and hickory, and in baits; May to Sept., larvæ in rotten stumps and logs. Delaware Water Gap, Lehig Gap, Parkland, Wyoming, Ricketts, Philadel-

phia, Frankford, Upper Darby, Markham, Mendenhall, Stoverdale, Inglenook, New Cumberland, New Bloomfield, Sweden Valley, Arendtsville, Cold Springs, Camp Hill, Charter Oak, Lewisburg, Northeast, Jeannette, Wilmerding, Pittsburgh.

8669—*equestris* LeC. May–July. Not common in Allegheny County (Hamilton), Roxboro, Uniontown, Charleroi, Jeannette, Pittsburgh.

8670—*posticus* Melsh. Type locality Pennsylvania: Melsheimer, 1846, p. 158. Klages collection contains specimens labelled this from Jeannette and Pittsburgh. Klages, 1901, p. 271, called it rare. It is also listed from Pennsylvania by LeConte, 1853, p. 426; Leng, 1920, and Van Dyke, 1932. May–July.

8671—*fossularis* LeC. Enterline, Endeavor, in July (Bureau of Plant Industry).

8676—*rufifrons* Rand. May–July. Mendenhall, Speeceville, Pecks Pond (Susquehanna County), Painter Den Pond (Sullivan County), Laporte, Cooksburg, Northeast, Erie, Jeannette, Pittsburgh.

#### LEPTUROIDES HBST. (CAMPYLUS FISCHER)

8696<sup>8</sup>—*productus* Rand. May–July. Horse Valley (Franklin County), Latrobe, Jeannette.

8699—*denticornis* Kby. Allegheny County, on weeds in wet ground, not rare according to Hamilton. May and June. Pike County, Ricketts, Jeannette, Pittsburgh. Listed from Pa. by LeConte, 1853, p. 423, and Blatchley, p. 759.

—*flavinasus* Melsh. Type locality, Pa.: Melsheimer, 1846, p. 219. Clearfield, Laporte. June.

#### LUDIUS ESCH. (CORYMBITES LATR.)

8705—*vernalis* Htz. April, May. Nottingham, Pond Bank, Chambersburg.

8707—*resplendens* Esch. June, July. Painter Den Pond, Northeast.

8708—*sjaelandicus* Muller. April–July. Delaware Water Gap, Frankford, Hummelstown, Charter Oak, Erie

—*tesselatus* Fab. April–June. Ashbourne, Linglestown, South Fork Camp, West Lenox.

8709—*atropurpureus* Melsh. Type locality Pa.: Melsheimer, 1846, p. 215. Delaware Water Gap. Recorded from Pa., by LeConte, 1853, p. 442; O. Schwarz, 1906, p. 224, and Leng, 1920.

8715—*pyrrhos* Hbst. June–August. Numerous in bait pails at Clarks Valley in July, according to Champlain and Knoll, 1932. Also found on walnut, hickory and other trees. Quite common throughout Pennsylvania: Delaware Water Gap, Parkland, Philadelphia, Bustleton, Darby, Broomall, Devon, Downingtown, Kelton, Wrightsville, Harrisburg, Hollidaysburg, Charter Oak, Erie, Rector, Jeannette, Pittsburgh.

8717—*bivittatus* Melsh. Klages, 1901, recorded this from Jeannette. June, July.

8721—*cylindriformis* Hbst. Late March to late August, chiefly in April and May. A fairly common species. Delaware Water Gap, Easton, Bethlehem, Parkland, Cornwells, Bustleton, Germantown, Tabor, Castle Rock, Downingtown, Avondale, Dresher, Hummelstown, Harrisburg, Chinchilla, Perdix, State College, Loretto, Cross Forks, Jeannette, Pittsburgh.

8727—*fulvipes* Bland. Mid April to early July. Hummelstown, Inglenook, Rockville, Arcola, Perdix, Mt. Alto, Renovo, Danville, Laporte, Ricketts, Jeannette, Pittsburgh. Hamilton listed the form *rufipes* Bland. from Allegheny County.

8734—*elongaticollis* Ham. Type locality: western Pa.: Hamilton, 1893, p. 307. May–July. Occasionally on rhubarb flowers. Allegheny County, not rare (Ham.). Germantown, Frankford, Bustleton, Clearfield, Nordmont, Laporte, Jeannette, Pittsburgh.

8738—*tarsalis* Melsh. Type locality Pa.: Melsheimer, 1846, p. 157. Late April to early July. On rhubarb and mustard flowers. Parkland, Cornwells, Bustleton, Roxboro, Manayunk, Castle Rock, Broomall, Middletown, Harrisburg, Hummelstown, Laporte, Pine Grove, Forksville, Wyoming, Chambersburg, Arendtsville, Jeannette, Wilmerding, Pittsburgh. Van Dyke says this is a subspecies of *caricinus* Germ. (8733).

8741—*insidiosus* LeC. Mt. Alto, Barbour, Laporte, Ricketts. June.

8748—*sulcicollis* Say. Adult active from April to August; hibernates in dry rotten stumps. Adult found in pupal cell in



decayed *Pinus rigida* at Cold Springs, Adams County, August 16, by Knull, '32. Pike County, Delaware Water Gap, Broomall, Hummelstown, Harrisburg, Endeavor, Linglestown, Chambersburg, Pecks Pond, Jeannette, Pittsburgh.

8751—*morulus* LeC. The Wenzel collection and the Castle collection each contain a specimen labelled this, from Pennsylvania.

8761—*athlops* Hbst. May to mid July. Clarks Valley in bait pails in July, according to Champlain and Knull, 1932. Hamilton found them not common in Allegheny County, by beating *Ampelopsis*. Bethlehem, Edge Hill, Philadelphia and vicinity, Swarthmore, Devon, Castle Rock, New Garden, Hummelstown, Inglenook, Rockville, Drumgold, Speeceville, Chambersburg, State College, Jeannette, Pittsburgh, Erie.

8762—*hamatus* Say. May to late July. A few found in baits. Hamilton said it was not common in Allegheny County, on oak and maple. Cresco, Delaware Water Gap, Parryville, Parkland, Manayunk, Philadelphia, Angora, Castle Rock, Downingtown, Harrisburg, Inglenook, Clarks Valley, New Bloomfield, Forksville, Ricketts, Laporte, Arendtsville, Jeannette, Erie.

8763—*propola* LeC. Rosecrans, Jeannette, Northeast. June-August.

8766—*triundulatus* Rand. North Mountain, Laporte, Jeannette. In bait pails in June, according to Champlain and Knull, 1932.

8769—*medianus* Germ. Indiana, in June, listed by Klages, 1901, p. 27. Champlain collected it at Clarks Valley in May.

8771—*fallax* Say. Laporte, in June, according to Knull.

8776—*splendens* Zieg. Type locality: western Pennsylvania: Ziegler, 1844, p. 44. May to late July. Hummelstown, Clarks Valley, Rosecrans, Perry County, Mt. Alto, Charter Oak. Also listed from Pennsylvania by LeConte, 1853; O. Schwarz, 1907; Blatchley, 1910; Leng, 1920, and Brown, 1935, p. 127.

8777—*areipennis* Kby. Charter Oak, Northeast. June, July. According to Brown (1935, p. 129), *areipennis* collected in the East are to be referred to *appropinquans* and *darlingtoni*.

8778—*nigricornis* Panz. Linglestown, Northeast. June, July.

8780—*inflatus* Say. Type locality Pennsylvania: Say, 1825, p. 258. April to late July. Allegheny County, common (Hamil-

ton). Mt. Pocono, Delaware County, Linglestown, Rockville, New Bloomfield, Speeceville, Arendtsville (in baits), Mt. Alto, Charter Oak, State College, Indiana, Northeast, Jeannette, Pittsburgh. Also listed for Pa. by LeConte, 1853, p. 438, as rare, and by Leng, 1920.

8781—*crassus* LeC. Type locality Pennsylvania: LeConte, X, 1853, p. 440. Van Dyke, 1932, lists this as a subspecies of *divaricatus* LeC. (8797).

8791—*rotundicollis* Say. Type locality Pa.: Say, 1825, p. 259. June–October. Knull, '32, said that the adults are rather rare, but the larvæ are more common, and predacious on Cerambycid larvæ in deciduous trees. Philadelphia, Hummelstown, Linglestown, Clarks Valley, Mt. Alto, Jeannette, Pittsburgh, Allegheny County (by beating *Ampelopsis* (Ham.)). Also listed by LeConte, 1853, p. 440.

8793—*cruciatus* L. Greentown, Forksville, Laporte. May–July.

8796—*hieroglyphicus* Say. Clarks Valley, many in bait pails in June, July and August, according to Champlain and Kirk, 1926, and Champlain and Knull, 1932. Kirk, 1922, stated that Knull and Champlain collected adults of this species feeding on small insects on foliage. Brown, 1936, p. 182, said types were from Massachusetts, New Hampshire and Pennsylvania. Foxburg, Cresco, Parryville, Greentown, Delaware Water Gap, Wind Gap, Graterford, Frankford, Broomall, Hummelstown, Harrisburg and vicinity, Charter Oak, State College, Laporte, Jeannette, Pittsburgh, Allegheny County (common, according to Hamilton).

#### HEMICREPIDUS GERM.

8812—*indistinctus* LeC. Angora, Harrisburg, Dauphin, Enterline, Jeannette, Pittsburgh, Harmarville, Allegheny County (rare, according to Hamilton). June–August.

8813—*decoloratus* Say. Common and widely distributed. Collected on asparagus and other leaves, by sweeping, and in baits. May to August. Greentown, Bethlehem, Lehigh Gap, Dalton, Easton, Delaware Water Gap, Parkland, Philadelphia, Bustleton, Hulmeville, Frankford, Glenside, Castle Rock, Upper Darby, Mendenhall, Avondale, Downingtown, Pomeroy, Hum-

melstown, Harrisburg, Dauphin, Endeavor, Charter Oak, State College, Laporte, North Mountain, Cresson, Foxburg, Jeannette, Pittsburgh.

—*hemipodus* Say. Feasterville, Hulmeville, Swarthmore, Downingtown, Mendenhall, Lancaster County, Harrisburg, Linglestown, Northeast, Pittsburgh. Listed by Hamilton. June, July.

*areus* Melsh. Allegheny County, rare, according to Hamilton.

8814—*memnonius* Hbst. Common and widely distributed; frequent in bait pails in July. June–August. Milford, Bethlehem, Coopersburg, Delaware Water Gap, Parkland, Philadelphia, Frankford, Roxboro, Fernwood, Lower Merion, Glenolden, Oxford, Delano, Lancaster, Hummelstown, Harrisburg, Clarks Valley, Endeavor, Arendtsville, Charter Oak, State College, Laporte, Northeast, Erie, Indiana, Jeannette, Pittsburgh.

8815—*brevicollis* Cand. Easton, Parkland, Germantown, York, Indiana, Jeannette, Pittsburgh. June to early September.

8817—*bilobatus* Say. On hickory trees at night, according to Kirk, '22. Late May to late August, Delaware Water Gap, Hulmeville, Philadelphia, Germantown, Roxboro, Harrisburg, Rockville, Clarks Valley (in bait pails), Williamsport, Erie, Jeannette, Pittsburgh.

—*cavifrons* Melsh. Listed from Pa., by LeConte, 1853, p. 453, and by Leng, 1920.

#### HYPNOIDUS STEPH. (CRYPTOHYPNUS ESCH.)

8820—*pulchellus* (L.). Listed by LeConte, 1866, p. 347, from Loyalsoek Creek, near Williamsport. Leng, 1920, questions its occurrence in America.

8821—*exiguus* Rand. Listed from Pennsylvania by LeConte, 1853, p. 487. Linglestown, Pittsburgh. June, July.

8826—*abbreviatus* Say. April to October. Forksville, West Lenox, Northeast, Jeannette, Allegheny County (not rare, by beating, according to Hamilton). Horn, 1891, p. 8, listed it from Hazleton.

8831—*planatus* LeC. (= *Lecontei* Leng). September. Chinchilla, Holiday, Pittsburgh. Also listed from Pa. by LeConte,

1866, p. 347; Horn, 1891; Schwarz, 1906, and Leng, 1920.

8832—*striatulus* LeC. Jeannette, Pittsburgh, Allegheny County (two examples under a stone (Hamilton)). Also listed from Allegheny County by Schwarz, 1906. July.

8834—*choris* Say. Delaware Water Gap, North Wales, Frankford, Chambersburg, Harrisburg, Eberleys Mill. April to June. On swamp huckleberry.

8837—*melsheimeri* Horn. Delaware Water Gap, Chambersburg, West Fairview, Jeannette. April, May, October.

—*guttulatus* LeC. Type locality Pa.: LeConte, 1853, p. 487. Linglestown. July.

8841—*tumescens* LeC. Erie, Pittsburgh. June, July.

8845—*perplexus* Horn. Hummelstown, Harrisburg, Jeannette. May–July. Horn, 1871, p. 304, stated that this occurs in Pennsylvania.

8848—*obliquatulus* Melsh. Type locality Pa.: Melsheimer, 1846, p. 214. Throughout the year; most common in June and July. Manayunk, Harrisburg, Enola, Arendtsville (in baits), Jeannette, Pittsburgh, Allegheny County (common under stones in April (Ham.)). Also listed from Pa. by LeConte, 1853; Candeze, 1860, p. 60; Leng, 1920.

8849—*pectoralis* Say. Milford, Easton, Cornwells, Harrisburg, Jeannette, Pittsburgh. March to late August.

#### CEOSTETHUS LEC.

8850—*femoralis* LeC. Delaware Water Gap, Linglestown, Jeannette, Pittsburgh, Allegheny County (common on willow in June (Hamilton)). May to October. Horn, 1891, p. 31, lists this from western Pennsylvania.

#### MELANACTES LEC.

8853—*piceus* DeG. Bethlehem, Lehigh Gap, Edge Hill, Penllyn, Bustleton, Frankford, Glenside, Broomall, Fernwood, Devon, Berwyn, York County (LeConte, 1853, p. 494), Hummelstown, Harrisburg, Linglestown, Landisburg, New Cumberland, Chambersburg, Indiana, Charter Oak, State College, Uniontown, Jeannette, Pittsburgh. April to August. Clarks Valley, numerous in bait pails in July and August, according to Champlain and Knull, 1932.



8855—*morio* Fab. Frankford, Mt. Airy, Glenolden, Marsh Run, Linglestown, Rockville, Dauphin, Chambersburg, Fayette County, Jeannette. June, July.

8856—*puncticollis* LeC. Jeannette in June and July, according to Klages.

CESTODES LEC.

8859—*tenuicollis* Rand. Greentown, Pocono Lake, Harrisburg, Greenfield, Laporte, Forksville, Williamsport, Erie, Presque Isle, Northeast, Jeannette, Pittsburgh, Allegheny County (not common, by beating (Ham.)). July.

PARALLELOSTETHUS O. SCHWARZ.

8861—*attenuatus* Say. This large elaterid is widely distributed in Pennsylvania, and sometimes fairly common, especially in June to August. It is attracted to bait pails. Kirk ('22), noted the larvæ as common in rotten logs, feeding on decaying moist wood. Delaware Water Gap, Iron Hill, Montgomery County, Cornwells, Bustleton, Frankford, Angora, Castle Rock, Broomall, Hummelstown, Harrisburg, Linglestown, Clarks Valley, Camp Hill, South Fork, Cocolamus, Arendtsville, Charter Oak, State College, Perryopolis, Wilmerding, Jeannette, Pittsburgh.

NEOTRICHOPHORUS JACOB (CRIGMUS LEC.)

8866—*abruptus* Say. Fairly common, and widely distributed. June–Sept. Champlain and Knull, 1932, found them plentiful in baits at Clarks Valley and Laporte, and Frost found them in baits at Arendtsville. Delaware Water Gap, Kutztown, Philadelphia, Delaware County, Kennett Square, West Grove, Harrisburg, Linglestown, Camp Hill, Clarks Valley, State College, Laporte, Jeannette, Pittsburgh.

OXYGONUS LEC.

8875—*obesus* Say. Greentown, Lebanon, Chinchilla, State College, Ricketts, Laporte. Klages, 1901, said that this species is rare at Jeannette, but rather common at Indiana in June. May–July.

8876—*montanus* Schfr. Mt. Alto, Laporte. May–July. Records by Knull.

## DALOPIUS ESCH.

8878—*lateralis* Esch. Frost collected this from baits at Arendtsville in June, and Champlain and Knull, 1932, found them plentiful in baits at Clarks Valley in May and June. They have also been recorded from mountain maple, blackberry, and tamarack. May–August. Cornwells (rhubarb flowers), East Park, Swarthmore, Hummelstown, Harrisburg, Inglenook, Pine Grove, Mt. Holly, Edenville, Charter Oak, North Mountain, Hartstown Bog, Presque Isle, Northeast, Jeannette, Pittsburgh.

—*pennsylvanicus* Brown. Type locality Pittsburgh: Brown, Can. Ent. March, 1934, p. 68. June.

—*cognatus* Brown. McConnellsburg, June.

## SERICUS ESCH.

8881—*viridanus* Say. Delaware Water Gap, Montgomery County, Philadelphia, Germantown, Fernwood, Rockville, Inglenook, South Fork Camp, State College, Laporte, Barbours, Jeannette, Pittsburgh, Allegheny County (not rare, on spruce (Hamilton)). April to June. Also listed by Melsheimer, 1806, p. 963; LeConte, 1853, p. 454; Candeze, 1863, p. 427, and Leng, 1920.

8883—*silaceus* Say. Delaware Water Gap, Cresco, Edge Hill, Wissinoming, Bustleton, Castle Rock, Swarthmore, Glenolden, Lancaster County, Harrisburg, Inglenook, New Cumberland, Drumgold, Charter Oak, State College, Williamsport, Laporte, Middlebury Center, Cedar Run, Uniontown, Cove Mountain, Jeannette, Pittsburgh, Allegheny County (abundant on blossoms (Hamilton)). Clarks Valley, plentiful in baits in May and June, according to Champlain and Knull, 1932. May to July.

—*debilis* LeC. Castle Rock, in June, according to BPI records.

8884—*honestus* Rand. Forksville, Laporte, Jeannette. June.

## AGRIOTES ESCH.

8885—*mancus* Say. An economic species, found all over the state, but most injurious to potatoes and other crops in the counties west and north of the mountains. April to July, chiefly in June. Hamilton said this species was rare in Allegheny County, but that the other species were common. Greentown, Bethlehem,

Harrisburg, Chinchilla, Concordville, Kennett Square, Cornwells, Chambersburg, Laporte, Clearfield County, Carbon County, Potter County, Tionesta, Union City, Erie, Edinboro, Corydon, Emlenton, Franklin, Cambridge Springs, Saegerstown, Mercer, Titusville, Volant, New Castle, Murraysville, Mt. Morris, Jeannette, Pittsburgh.

—*truncatus* Melsh. and *striatulus* Melsh. were described from Pa. in 1846, p. 217.

8886—*stabilis* LeC. Greentown, Cedar Run, Laporte, Jeannette, Pittsburgh. Klages, 1901, said it was not rare in Westmoreland County and about Pittsburgh. May to August.

8887—*insanus* Cand. Cornwells, on rhubarb flowers; Delaware County, Chambersburg, Jeannette, Allegheny County. May to July.

8888—*fucosus* LeC. Mt. Pocono, Laporte, Pa. (Horn collection). June.

8893—*pubescens* Melsh. Type locality Pa.: Melsheimer, 1846, p. 217. Cresco, Cornwells, Bustleton, (on rhubarb flowers), Frankford, Linglestown, McConnellsburg, Charter Oak, Laporte, Renovo, Hartstown Bog, Jeannette, Allegheny County. Clarks Valley, in baits. May to July. Also listed from Pa. by LeConte, 1853, 1884; Blatchley, 1910, and Leng, 1920.

8897—*oblongicollis* Melsh. Fairly common and widely distributed. Champlain and Knull, 1932, found them plentiful in baits in June at Clarks Valley. April to July. Delaware Water Gap, Bethlehem, Wyoming, Montgomery County, Parkland, Cornwells, Manayunk, Philadelphia, Roxboro, Overbrook, Media, Glenolden, Castle Rock, Conewago, Hummelstown, Harrisburg, Linglestown, Camp Hill, Pine Grove, State College, Jeannette, Pittsburgh, Allegheny County (Ham.), Natrona, New Brighton.

a—*isabellinus* Melsh. Type locality Pa.: Melsheimer, 1846, p. 218. Much less common than the above form. Hummelstown, Inglenook, Mt. Alto, State College, Jeannette, Pittsburgh. May–July. Also listed by LeConte, 1853, p. 456; Leng, 1920, and Brown, 1936, p. 250.

8900—*avulsus* LeC. Type locality Pa.: LeConte, 1853, p. 457. Jeannette, Pittsburgh. Klages, 1901, said it was not rare in Westmoreland County and about Pittsburgh. May, June. Also listed by Candeze, 1863, p. 363; Blatchley, 1910, and Leng, 1920.

## AGRIOTELLA BROWN (BETARMON KIES.)

8904—*bigeminatus* Rand. May to July. Delaware Water Gap, Frankford, Linglestown, Penn-Mar, Barbours, Jeannette, Pittsburgh, Allegheny County (common on spruce in June (Hamilton)). Also listed from Pa. by LeConte, 1853, and Leng, 1920.

## GLYPHONYX CAND.

8906—*recticollis* Say. April to Sept., chiefly in June and July. Bethlehem, Parkland, Manayunk, Glenolden, Lancaster, Landisburg, Hummelstown, Harrisburg, Linglestown, Lemoyne, Chambersburg, Pond Bank, Charter Oak, Charleroi, Jeannette, Allegheny County.

8907—*testaceus* Melsh. Type locality Pa.: Melsheimer, 1846, p. 219. Milford, Eberleys Mills, Arendtsville, Jeannette, Pittsburgh. Also listed from Pa. by LeConte, 1853; Hamilton, 1901, and Leng, 1920.

8910—*inquinatus* Say. May to July. Mt. Alto, Arendtsville (at baits), Hummelstown, Jeannette.

## DRASTERIUS ESCH.

8922—*fretus* Csy. Type locality, near Philadelphia: Casey, II, 1886, p. 170. Also listed from Pa., by Schwarz, 1906, and Leng, 1920.

## AMPEDUS GERM. (ELATER L.)

The larvæ of this genus feed in rotting wood and under the bark of dead trees. The adults are usually found on flowers or under bark.

8931—*cordifer* LeC. Although this is a western species, a specimen in the BPI collection is labelled North Mountain, Pa.

8932—*pullus* Germ. Champlain and Knull, 1932, collected this in baits at Laporte in late July and early August.

8934—*nigricollis* Hbst. A common and widely distributed species. Hibernates in logs and stumps in woodlands; found as adult throughout the year, but most active from April to late June. Bethlehem, Delaware Water Gap, Wyoming, Ashbourne, Norristown, Philadelphia, Bustleton, Frankford, Overbrook, Tinicum Id., Devon, Upper Darby, Broomall, Morton, Castle



Rock, Unionville, Avondale, Jennersville, Middletown, Hummelstown, Harrisburg, Inglenook, Clarks Valley, Williamsport, Mt. Alto, Hollidaysburg, Charter Oak, State College, Indiana, Uniontown, Nordmont, Cross Fork, Derrick City, Northeast, Jeannette, Pittsburgh.

8935—*luteus* Say. Adults collected in nearly every month; hibernates under bark and in rotten logs and stumps. Most active in April to July. Delaware Water Gap, Bethlehem, Greentown, Wyoming, Philadelphia, Grays Ferry, Germantown, Lester, Castle Rock, Broomall, Kennett Square, West Grove, Jennersville, Hummelstown, Harrisburg, New Cumberland, Linglestown, Mt. Alto, State College, Uniontown, Jeannette, Pittsburgh.

8936—*discoideus* Fab. (*sellatus* Dej.). Hibernates under bark and in dead logs. Most active in April to June. Adult in pupal cell in dead pine at Cold Springs, Aug. 16, according to Knull, 1932. Delaware Water Gap, Philadelphia, Frankford, Broomall, Hummelstown, Inglenook, Camp Hill, Hollidaysburg, State College, Uniontown, Latrobe, Pittsburgh.

8937—*vitiosus* LeC. Hibernates in logs and stumps; most active in May to July. Champlain and Knull, 1932, collected it in baits in July, at Laporte; Knull, 1932, found many adults in pupal cells in decayed beeches at Sweden Valley, Sept. 23. Kirk, 1922, found adults and larvæ with *A. sayi* LeC., in a hole in a living *Celtis occidentalis* on Nov. 12, near Harrisburg. Other collections: Greentown, Painter Den Pond, State College, Sweden Valley, Jeannette, Latrobe, Pittsburgh.

8938—*læsus* LeC. Hibernates as above species; active April to July. Hummelstown, Harrisburg, State College, Elk County, Uniontown, Jeannette, Pittsburgh.

8939—*sayi* LeC. Hibernates as above; most active late April to July. Wyoming, Philadelphia, Bustleton, Frankford, Roxboro, Chester Springs, Hummelstown, Harrisburg, Inglenook, Linglestown, Chambersburg, State College, Tionesta, Jeannette, Allegheny County (rare (Ham.)).

8940—*rubricollis* Hbst. Active April to July. Delaware Water Gap, Lehigh Gap, Bethlehem, Arcola, Philadelphia, Frankford, Swarthmore, Eagle, Rockville, Inglenook, Chambersburg, Charter Oak, State College, Jeannette, Pittsburgh, Allegheny County (common, according to Hamilton).

—*verticinus* Beauv. Active April to July, chiefly in June. Delaware Water Gap, Cresco, Germantown, Broomall, West Grove, Nottingham, Hummelstown, Inglenook, Clarks Valley (numerous in baits in July (Knull, '32)), Rockville, Goodyear, Carlisle Jet., Mt. Alto (common in pupal cells in winter in dead pitch pine (Knull, '32)), Charter Oak, State College, Pine Grove.

8941—*semicinctus* Rand. Hibernates as above species; active April to July. Greentown, Cresco, Broomall, Inglenook, Endeavor, Clarks Valley (numerous in baits in late July), Caledonia (in decayed Sycamore log), Cold Springs (adults in pupal cells in decayed hemlock stumps (Knull, '32)), Hollidaysburg, Cove Mt., Laporte (in baits in June and July (Champlain and Knull, 1932)), Hartstown Bog, Wilmerding, Jeannette.

8942—*militaris* Harris. Frankford, Castle Rock, West Grove, Westtown, Harrisburg, Jeannette, Pittsburgh. Hamilton listed this species from Allegheny County, but Klages (1901, p. 287) stated that this was wrongly determined in that list, and had not been found in Pittsburgh up to 1901.

8943—*rubricus* Say. Bethlehem, Cresco, Delaware Water Gap, Mt. Pocono, Kutztown, North Mt., Ardmore, Inglenook, Clarks Valley (plentiful in baits in June (Champlain and Knull, '32)), Endeavor, Cove Mt., Manada Gap, Hollidaysburg, Charter Oak, Northeast, Hartstown Bog, Jeannette, Pittsburgh, Allegheny County (not common (Hamilton)). Active May to July. Williamsport (LeConte, 1866, p. 347).

8948—*collaris* Say. Active May to August, chiefly June and July. Delaware Water Gap, Cresco, Edge Hill, Montgomery County, Philadelphia, Kennett Square, Hummelstown, Rockville, Clarks Valley, Drumgold, New Bloomfield, Mt. Alto, Carlisle Jet., Charter Oak, State College, Jeannette, Crafton, Pittsburgh, Allegheny County (not common (Ham.)).

8950—*sanguinipennis* Say. March to late June. Philadelphia Neck, Grays Ferry, Castle Rock, Horse Valley, Hartstown Bog.

8951—*xanthomus* Germ. Hibernates under pine and other bark. Active April to July. Many adults in pupal cells in winter under bark of dead *Pinus rigida* at Mt. Alto (Knull, 1932). Delaware Water Gap, Hummelstown, Linglestown, Mt. Alto, State College, Jeannette, Allegheny County (not common (Ham.)).

—*humeralis* Melsh. Type locality Pa.: Melsheimer, 1846, p. 159. Also listed from Pa. by LeConte, 1853, p. 471.

8953—*apicatus* Say.

a—*phænicopterus* Germ. Hamilton listed this from Allegheny County, and from St. Vincent, Westmoreland County. Van Dyke, however, said it was found in the Pacific and Northwestern states.

8955—*obliquus* Say. May to September; most active in June and July. Occasionally at lights and in baits; hibernates under bark. Bethlehem, Parkland, Philadelphia, Bustleton, Frankford, Roxboro, Broomall, Castle Rock, Hummelstown, Linglestown, Clarks Valley, Landisburg, Arendtsville, Jeannette, Pittsburgh.

a—*areaolatus* Say. May to August. Frost collected it in baits at Arendtsville. Ithan, Glenolden, Hummelstown, Landisburg, Clarks Valley, Arendtsville, Chambersburg, Laporte, Jeannette, Pittsburgh.

8956—*pusio* Germ. May to August. Hummelstown, Pond Bank, Charter Oak, Jeannette, Pittsburgh, Allegheny County (not rare, on *Ampelopsis* in May (Hamilton)).

—*luteolus* LeC. Specimen in the Lane collection labelled Germantown, July.

8959—*manipularis* Cand. Adults present throughout the year; active in May to August. Hibernates as above. Occasionally attracted to baits. Castle Rock, Upper Darby, Hummelstown, Harrisburg, Clarks Valley, Linglestown, State College, Jeannette, Pittsburgh.

8960—*pedalis* Germ. April to late July. Occasionally in baits. Has been collected in most sections of the state. Delaware Water Gap, Cresco, Edge Hill, Frankford, Roxboro, Tincum Id., Angora, Glenolden, Nottingham, Hummelstown, Clarks Valley, Dauphin, Hunters Run, Arcola, New Bloomfield, Carlisle Jet., Chambersburg, Charter Oak, State College, Laporte, Northeast, Hartstown Bog, Charleroi, Jeannette, Pittsburgh.

—*ursulus* Melsh. Type locality Pa.: Melsheimer, 1846, p. 213. Also listed by LeConte, 1853, and Leng, 1920.

—*deletus* LeC. Kirk collected this at Clarks Summit in rotten wood.

8964—*mixtus* Hbst. May to late July. Pocono Lake, Dela-

ware Water Gap, Hunters Run, Charter Oak, Laporte (numerous in baits in June (Champlain and Knull, 1932)), North Mt., Jeannette, Pittsburgh, Latrobe and Allegheny County, common, according to Hamilton.

—*miniipennis* LeC. Quirsfeld listed this from Greentown, in June.

8965—*impolitus* Melsh. Type locality Pa.: Melsheimer, 1846, p. 180. June and July. Jeannette, Pittsburgh (Klages). Southwest Pa., common, by beating, according to Hamilton. Also listed from Pa. by LeConte, 1853, p. 467; Blatchley, 1910, p. 733, and Leng, 1920.

8966—*socer* LeC. Late April to late July. Delaware Water Gap, Cresco, Germantown, Marietta, Landisburg, Inglenook, Endeavor, Charter Oak, State College, Jeannette, Pittsburgh. Also listed from Pa. by Candeze, 1859, p. 441; LeConte, 1884, p. 10; Leng, 1920.

8968—*luctuosus* LeC. May to July. Laporte, specimen in the Knull collection marked with a question mark; the Lane collection contains a specimen from Blue Ridge Summit; Jeannette. Allegheny County, not common (Ham.). LeConte, 1866, p. 347, listed this from Loyalsock Creek, 30 miles from Williamsport.

8969—*nigricans* Germ. May to July. Rockville, Inglenook, Clarks Valley (numerous in baits in July (Champlain and Knull, '32)), Mt. Alto, State College, Laporte, Jeannette, Pittsburgh, Allegheny County (not rare (Ham.)).

—*fuscatus* Melsh. and *testaceipes* Melsh. Type locality Pa.: Melsheimer, 1846, p. 213. *Fuscatus* was also listed from Loyalsock Creek, near Williamsport, by LeConte, 1866, p. 347.

—*melanotoides* Brown. Allotype: State College, April 18, 1910; Brown, 1933, p. 134. In Canadian collection.

#### ECTAMENOGONUS BUYSS.

8971—*melsheimeri* Leng. Leng, 1918, p. 206. April to July. Adult hibernates. Delaware Water Gap, Philadelphia, Harrisburg, Rockville, State College, Jeannette, Pittsburgh.

—*hepaticus* Melsh. Type locality Pa.: Melsheimer, 1846, p. 160. Active April to July. Adult hibernates. Frankford, Hummelstown, Harrisburg, Mt. Alto, Chambersburg, Jeannette,

Allegheny County. Also listed from Pa. by LeConte, 1853, p. 467; Candeze, XIV, 1859, p. 442; Leng, 1920.

#### MEGAPENTHES KIES.

8980—*limbalis* Hbst. Widely distributed, fairly common, by beating. June to August. Wyoming, Delaware Gap, Bethlehem, Emaus, Philadelphia, Frankford, Broomall, Castle Rock, West Chester, Homeville, Downingtown, Rockville, Clarks Valley, Lotell, Brandtsville, Camp Hill, Cove Mt., Blue Mt., Jeannette, Pittsburgh, Allegheny County (not common (Ham.)).

—*granulosus* Melsh. Listed from Pa. by LeConte, 1884, p. 6.

8983—*rufilabris* Germ. Philadelphia, Mt. Alto (common in baits in July (Champlain and Knull, '32)), Jeannette, Pittsburgh.

#### DICREPIDIUS ESCH.

8993—*palmatus* Cand. The Horn collection contains one specimen labelled "S.W.Pa. or N.C." Hamilton noted this species as not common at St. Vincent, Latrobe, and in Allegheny County.

8994—*ramicornis* Beauv. The Wenzel collection contained one specimen labelled this, from Frankford.

#### ISCHIODONTUS CAND.

8996—*soleatus* Say. Specimens in the Lane collection from Pittsburgh, July and August.

#### ANCHASTUS LEC.

9009—*fuscus* LeC. Specimen in the Knull collection from Fort Hunter, just north of Harrisburg, in July.

9012—*digitatus* LeC. Type locality Pa.: LeConte, X, 1853, p. 459. Listed by Leng, 1920. No specimens in the collections which I examined.

#### MELANOTUS ESCH.

Adults hibernate in logs and stumps. Some species are commonly attracted to baits, others to lights. Several species are of economic importance.

9015—*castanipes* Payk. May to October, most active in June and July. Delaware Water Gap, Kutztown, Frankford, Fox



Chase, Roxboro, Clarks Valley, Cold Springs, State College, Jeannette, Pittsburgh.

—*inequalis* LeC. LeConte, 1866, p. 347, listed this from near Williamsport; Leng, 1920, also lists it from Pennsylvania.

—*scrobicollis* LeC. May to July. Philadelphia, Arnot, Endeavor, State College, Northeast, Jeannette, Pittsburgh.

9016—*corticinus* Say. Clarks Valley (in baits in mid-July (Champlain and Knull, 1932)), Inglenook, Perry County, Jeannette, Pittsburgh, Allegheny County (not abundant (Hamilton)). Melsheimer, 1806, p. 966, also lists this for Pa.

9019—*decumanus* Er. May to August. Philadelphia, Germantown, Fox Chase, Roxboro, Upper Darby, Lester, Glenolden, Toughkenamon, Jennersville, Clarks Valley, Linglestown, Harrisburg, Speeceville, Arendtsville (in baits), Jeannette, Pittsburgh.

—*cuneatus* LeC. Specimen in the Horn collection labelled Allegheny.

9020—*canadensis* Cand. June, July. Frankford, Fox Chase, Swarthmore, Hummelstown, Harrisburg.

9022—*clandestinus* Er. Specimen in the Lane collection labelled South Philadelphia, July.

9023—*secretus* LeC. Edge Hill. Specimens in the Horn and Cornell collections labelled Pa. July.

9024—*longicornis* Blatch. Specimen in Wenzel collection labelled this species, from Darby.

9025—*ignobilis* Melsh. Type locality Pa.: Melsheimer, 1846, p. 152. Specimen in Klages collection labelled Pittsburgh, June. Also listed from Pa. by LeConte, 1853, p. 475; Schwarz, 1906, p. 190; Blatchley, 1910, and Leng, 1920.

9026—*depressus* Melsh. Type locality Pa.: Melsheimer, 1846, p. 151. June, July. Frankford, York, Arendtsville (in baits), Jeannette, Charleroi, Pittsburgh. Also listed by Schwarz, 1906, and Leng, 1920.

9027—*prasinus* Blatch. Specimen in the Lane collection labelled Mt. Alto, May.

9028—*angustatus* Er. June. Landisburg (det. by Van Zwaluwenburg), Jeannette, Allegheny County (Hamilton). Also listed from Pa. by LeConte, 1853, p. 475, and Leng, 1920.

—*testaceus* Melsh. Type locality Pa.: Melsheimer, 1846, p. 151. No other records seen.

9029—*trapezoideus* LeC. May to July. Delaware Water Gap, Montgomery County, Germantown, Harrisburg, Lingsletown, Arendtsville, Jeannette, Pittsburgh.

9030—*tanicollis* LeC. Type locality Philadelphia: LeConte, 1853, p. 475. May to July. Frankford, Germantown, Broomall, Downingtown, Jennersville, Hummelstown.

9031—*leonardi* LeC. Type locality Pa.: LeConte, 1853, p. 475. June to August. Delaware Water Gap, Jeannette. Listed from Pa., by Leng.

9033—*glandicolor* Melsh. Type locality Pa.: Melsheimer, 1846, p. 152. June, July. Penfield, Laporte (in baits (Champlain and Knull, 1932)), Jeannette. Also listed from Pa. by LeConte, 1853, p. 477, by Leng, 1920, and by Lane.

9034—*divarcarinus* Blatch. May to September. South Langhorne, Nottingham, Jeannette, Pittsburgh.

9035—*communis* Gyll. This and the next species are our most common *Melanotus* species. They are attracted to lights and baits, and hibernate in large numbers in rotten logs and stumps in woodlands, under bark and codling moth bands. The larvæ are injurious to corn and potatoes, especially in the southern part of Pennsylvania, and usually not far from woodlands. Bethlehem, Edge Hill, Parkland, Norristown, Arcola, Philadelphia, Bustleton, Mt. Airy, Glenolden, Upper Darby, Castle Rock, Lester, Devon, Kennett Square, Avondale, West Grove, Jennersville, Greenfield, Hummelstown, Harrisburg, Speeceville, Clarks Valley, Landisburg, Pennsburg, Mt. Alto, Arendtsville, Altoona, Charter Oak, State College, Vosburg, Laporte, Northeast, Harts-town Bog, Jeannette, Pittsburgh. Most active in May to September. Pupates in July and early August.

9036—*fissilis* Say. Nearly as common as *communis*. Hibernates in the same places, and is also attracted to baits and lights. Most active in June to August. Bethlehem, Easton, Parkland, Arcola, Philadelphia, Roxboro, Bustleton, Cornwells, Grays Ferry, Glenolden, Castle Rock, Kennett Square, Jennersville, Hummelstown, Rockville, Clarks Valley, Arendtsville, Carlisle Jct., Charter Oak, State College, Laporte, Northeast, Jeannette, Pittsburgh, New Brighton.

*orchraceipennis* Melsh. Type locality Pa.: Melsheimer, 1846, p. 150.

*sphenoidalis* Melsh. Type locality Pa.: Melsheimer, 1846, p. 150.

9037—*exuberans* LeC. Delaware Water Gap. Hamilton said it was common in Allegheny County; the Horn collection contains a specimen from Allegheny. Leng, 1920, listed this species from New Mexico.

9040—*parumpunctatus* Melsh. Late April to late July. Delaware Water Gap, Cornwells, Philadelphia, Delaware County, Hummelstown, Harrisburg, Inglenook, Clarks Valley, Pine Grove, Monroe Valley, Mt. Alto, Charter Oak, State College, Jeannette, Charleroi, Pittsburgh, Allegheny County (common (Hamilton)). Also listed from Pa. by Schwarz, 1906, p. 190, and Leng, 1920.

9042—*verberans* LeC. June, July. Germantown, Angora, Delaware County, Linglestown, Jeannette, Pittsburgh, Allegheny County (common (Hamilton)).

9043—*emissus* LeC. Seven Mts., July 10 (Knull).

9044—*infaustus* LeC. Castle Rock, June (Wenzel).

9045—*cribulosus* LeC. Philadelphia, June (W.I.); Pa. (Geo. Greene).

9048—*pertinax* Say. June to August. Milford, Montgomery County, Frankford, Mt. Airy, Delaware County, Pond Bank, Jeannette, Pittsburgh, Allegheny County (not common (Hamilton)), Washington County.

9049—*dubius* LeC. Delaware Water Gap, Montgomery County, Frankford, Hummelstown, Allegheny.

9050—*tenax* Say. Castle Rock, April 16 (Daecke).

9051—*americanus* Hbst. Common and widely distributed. April to August, chiefly in June and July. Delaware Water Gap, Wyoming, Edge Hill, Parkland, Philadelphia, Bustleton, Angora, Mt. Airy, Lester, Glenolden, Castle Rock, Kennett Square, Jennersville, Downingtown, Lancaster County, Hummelstown, Harrisburg, Linglestown, Wabank, Foxburg, Landisburg, Jeannette, Pittsburgh, Allegheny County (common (Ham.)), Washington County.

9054—*gradatus* LeC. May to July. Hummelstown, Jeannette, Pittsburgh, Allegheny County (not common (Ham.)).

9059—*sagittarius* LeC. June, July. Montgomery County,

Darby, Hummelstown, Harrisburg, Inglenook, Landisburg, New Germantown, Heckton Mills, Pine Grove, Mt. Holly, Laporte (very plentiful in baits in July (Champlain and Knull, 1932)), Hartstown Bog, Indiana, Jeannette, Pittsburgh, Crafton, Allegheny County (common (Ham.)).

9063—*paradoxus* Melsh. Type locality Pa.: Melsheimer, 1846, p. 152. One specimen from Philadelphia, supposedly this, in the Cornell collection. Also listed from Pa. by LeConte, 1853, p. 480, and Leng, 1920.

—*cribulosus* LeC. Listed from Pa., by the Horn collection.

19626—*hyslopi* Van Z. April to September. Have been collected in Japanese Beetle baits. Champlain and Knull, 1932, found them very plentiful in baits at Clarks Valley in June and July. Upper Darby, Hummelstown, Landisburg, Dauphin, Inglenook, Cooksburg, Charter Oak, State College, Cornwall, Doltton, Jeannette.

#### CARDIOPHORUS ESCH.

9071—*cardisce* Say. June. Jeannette (Klages), Southwest Pa. (not rare (Ham.)). Also listed by Say, VI, 1839, p. 169.

9082—*convexus* Say. May to July. Parkland, Homeville, Inglenook, Dillsville, Erie, Jeannette, Pittsburgh, Southwest Pa. (in fields and hedges, common, according to Hamilton). Blanchard, 1889, p. 15, also listed this from Pennsylvania.

9087—*gagates* Er. Delaware Water Gap, Greentown, Philadelphia, Rockville, Linglestown, Herndon, Heckton Mills, Colemansville, Chambersburg, Caledonia, Charter Oak, Hartstown Bog, Jeannette, Pittsburgh, Allegheny County (not rare, by beating (Hamilton)).

9092—*convexus* LeC. May to October. Milford, Angora, Harrisburg, Charter Oak, Jeannette, Pittsburgh, Southwest Pa. (not rare (Hamilton)).

9098—*robustus* LeC. The Klages collection contained a specimen, presumably this, from Greenville, June 25. Blanchard, 1889, lists it from Pennsylvania.

9114—*curiatus* Say. May to August. Frequently on leaves of May apple. Wyoming, Philadelphia, Angora, Broomall, Glenolden, Lancaster County, Harrisburg, Linglestown, New Cumberland, Enola, Mt. Alto, Jeannette, Pittsburgh, Allegheny County (not rare (Hamilton)).

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